INSIGHTS INTO THE INTERNAL STRUCTURE OF NEAR-EARTH ASTEROID (433) EROS THROUGH THE EJECTA BLOCKS ON (433) EROS AND AT KINGS BOWL CRATER, IDAHO. D. W.G. Sears[1,2], A. Sehlke[1], S. S Hughes[3], and S. Kobs Nawotniak[3]. [1]NASA Ames Research Center, Moffett Field, CA, U.S.A. (derek.sears@nasa.gov), [2]BAER Institute, NASA Ames Research Center, Moffett Field, CA, U.S.A.,[3]Department of Geosciences, Idaho State University, Pocatello, ID, U.S.A.

Last year, at this meeting, we presented some preliminary data and some initial ideas what can be learned by comparing ejecta blocks at a terrestrial phreatic crater with the boulders on the near earth asteroid (433) Eros. Our objective was to learn something about the nature of boulders on the surface of (433) Eros. We measured the size, aspect ratio, number density, distance from source, and cumulative size frequency distribution of (1) boulders visible in three mosaics of very different regions of the surface of the near-Earth asteroid (433) Eros and (2) ejecta blocks associated with the Kings Bowl crater near Craters of the Moon, Idaho. We have now increased our Eros database by a factor of three and completed our study. Our (433) Eros results compare well with those in the literature. Despite the differences in the environments of the boulders on (433) Eros and Kings Bowl and the size and history of the Shoemaker crater on (433) Eros, the source of the (433) Eros boulders, and Kings Bowl crater, the boulders and blocks have very similar characteristics for all the properties measured. We argue that this implies a similar formation process and very similar mechanical properties for the boulders and blocks which, in turn, suggests that the impactor that formed the Shoemaker crater penetrated regolith and excavated material from a coherent interior. This is consistent with arguments in the literature that the surface features Hinks Dorsum and Finsen Dorsum on (433) Eros imply a monolithic interior for the asteroid.